

Post Road Bridge  
Maryland State Route 7-A  
Havre de Grace  
Harford County  
Maryland

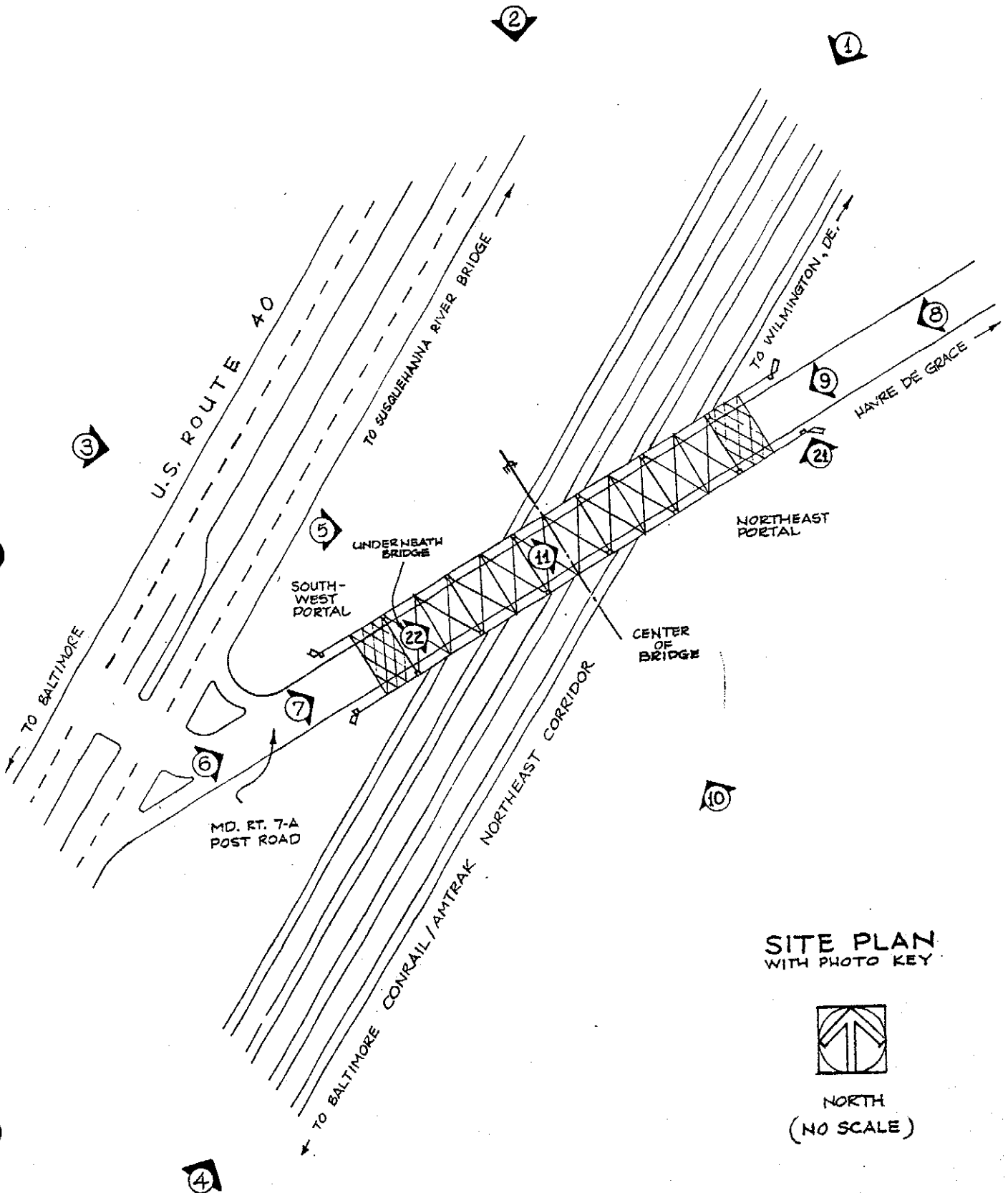
HAER No. MD-44

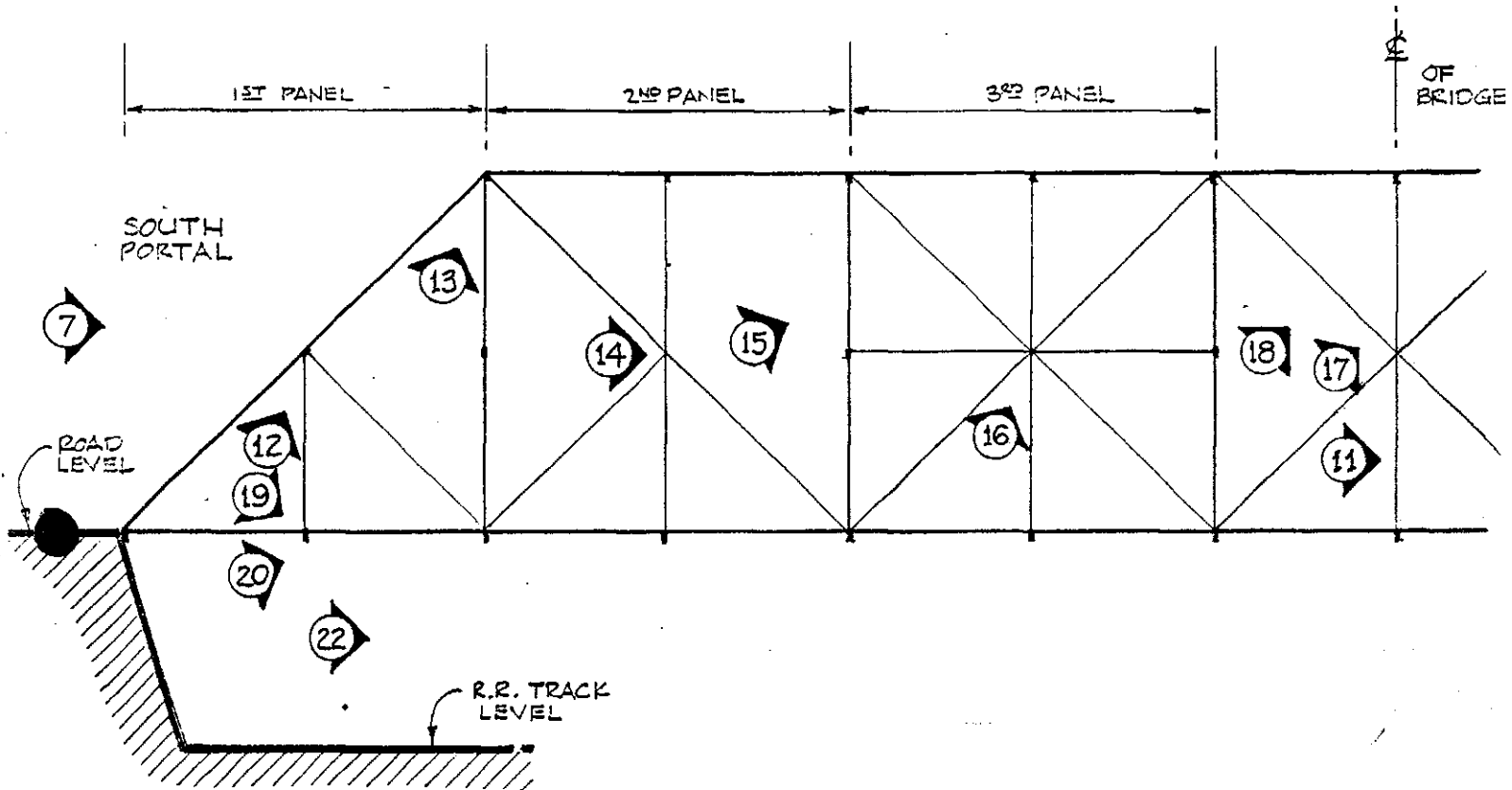
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MD,  
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PHOTOGRAPHS

HISTORICAL & DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
Department of the Interior  
Washington, D. C. 20240





TRUSS ELEVATION  
LOOKING NORTHWEST FROM  
INSIDE THE BRIDGE  
WITH PHOTO KEY  
NO SCALE

HISTORIC AMERICAN ENGINEERING RECORD

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POST ROAD BRIDGE

MD-44

Location: Maryland State Route 7-A bridge spanning the main line tracks of the CONRAIL-AMTRAK Northeast Corridor, approximately 1/2 mile southwest of Havre de Grace, Harford County, Maryland, and 0.1 mile northeast of the intersection of U. S. Route 40 and Maryland Route 7-A.

UTM: 18.404270.4376680  
Quad: Havre de Grace; 7.5 minute series

Date of Construction: 1905; the deck was rehabilitated in 1952 by the Pennsylvania Railroad

Present Use: Vehicular and pedestrian traffic

Present Owner: State Highway Administration  
Maryland Department of Transportation  
707 North Calvert Street  
Baltimore, Maryland 21202

Significance: The bridge, a subdivided Pratt through truss commonly known as a Baltimore truss with substruts and subties, is an example of an early truss form developed for use on long spans. The bridge was fabricated by the American Bridge Company in 1905 for the Maryland Division, P.B. & W. RR. of the Pennsylvania Railroad

In Harford County, Maryland, approximately one-half mile southwest of the town of Havre de Grace; Post Road, Maryland, State Route 7-A, crosses the four track, electrified main line of the CONRAIL-AMTRAK Northeast Corridor. In 1905, at this site, the American Bridge Company fabricated and erected a 268'-4" long, 26'-0" wide, 38'-4" high truss bridge, capable of spanning the four tracks, which were 13'-0" on center, and provide a clearance of the four tracks. Clearance from the top of the rails to the bottom of the bridge structure was 20'-0".

The truss selected for the span was a type of Pratt truss known as a Baltimore truss, with substruts and subties. Originally built by the Pennsylvania Railroad in 1871, the typical Baltimore truss was capable of spanning distances ranging from 200 to 600 feet in length, and was employed at the Post Road crossing because of its ease of fabrication and erection, its proven durability, and its relatively low cost.

The bridge was constructed from soft, open-hearth steel, and was pin-connected on site with individual members being shop-fabricated using riveted connections. The channel and angle sections from which the built-up members were made conformed to steel manufacturers' standards adapted in 1895.

At the time of the construction of the bridge, general analysis of stresses and the proportioning of members to accommodate these stresses was understood and practiced, hence the diversity in the sizes and shapes of the various members on the bridge. Unfortunately, these principles generally stopped at the bridge seats. As a rule, the base width of the abutment was generally made equal to one-half its height and an extension or offset provided for the footing. The magnitude and relative location of the superstructure load concentrations were rarely given consideration; as a result, the bottoms of the abutment foundations of the Post Road bridge, as shown in the original drawings, are 7'-6" below the elevation of the top of the rail. The drawings also indicate the abutments bearing on hard clay.

The original construction project included not only fabricating and erecting the bridge, and the abutments, but placing embankments for and reconstructing Post Road for a length of about 1400 feet. The as-built quantities and costs for the project were:

1,371 C.Y.	Excavation @ 1.50	\$2,056.50
373 C.Y.	Foundation masonry @ 9.45	3,524.85
1,042 C.Y.	Ashlar masonry @ 9.45	9,846.90
394,089 lbs.	Bridge iron @ 0.034	11,980.31
	Labor-superstructure	7,612.89
	Fencing	1,057.02
2,092 S.Y.	Macadam @ 0.79	1,057.02
35,981 C.Y.	Fill for approaches @ 0.21	7,556.01
	Extra work on approaches	190.52
	Building temporary road	1,178.78
12 C.Y.	Foundation excavation @ 1.50	18.00
11 C.Y.	Rubble masonry @ 6.45	70.95
31,976 lbs.	Cast iron pipe @ 0.035	1,119.16
	Engineering expenses	185.00
	Total Cost	\$48,049.57

Individuals who participated in the project and whose names appear on the drawings are:

William H. Brown, Chief Engineer, P.B. & W. RR.  
H. R. Leonard, Engineer of Bridges, P.B. & W. RR.  
J. F. Cullen, Assistant Engineer, P.N. & W. RR.

The Post Road bridge was used heavily and continuously from its construction in 1905 until 1952, when its deteriorated macadam deck was resurfaced with a new asphalt deck by the Pennsylvania Railroad. However, because the vehicular use was so heavy, the new deck began cracking soon thereafter and during the next several decades the potholes, heaves, and cracks grew worse. In 1982, the Maryland State Highway Administration closed the bridge and dismantled it and its abutments because: the deck was too hazardous; the superstructure could not carry the required amount of live load; the bridge was not wide enough to provide proper traffic separation; and the abutments did not give the railroad adequate lateral clearance.

References:

Basic compilation for this monograph was provided by the Maryland State Highway Administration, Bureau of Bridge Design. Additional sources employed were:

Record of History and Evolution of Early American Bridges by L. N. Edwards (University Press, 1959)

American Civil Engineers Handbook by Merriman and Wiggan (J. Wiley & Sons, 1930)

Transmitted by:

Jean P. Yearby, 1984, from data compiled by John R. Bowie, Preservation Consulting Services, Media, Pennsylvania. Formal photography by Jack E. Boucher and Alvin MacDonald. Photocopies courtesy of the Maryland State Highway Administration.